



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,526	12/21/2001	Serge Jacques Fayeulle	STL10314/40046.163USUI	3682

7590

05/05/2004

David K Lucente LLC  
Seagate Technology LLC  
389 Disc Drive  
Longmont, CO 80503

EXAMINER
----------

RODRIGUEZ, GLENDA P

ART UNIT	PAPER NUMBER
----------	--------------

2651

DATE MAILED: 05/05/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/027,526

Applicant(s)

FAYEULLE ET AL.

Examiner

Glenda P. Rodriguez

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-19 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10-31-2002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: using the expression "said device" when no device was stated previously in the sentence. Appropriate correction is required.

Claims 10, 11, and 12 are objected to because of the following informalities: "the method of Claim 8", when Claim 8 depends on Claim 1 addresses a system. Examiner will assume that Claims 10-12 depend on Claim 9, which is a method of the claimed invention. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (US Patent No. 6, 088, 200) in view of Ottesen et al. (US Patent No. 6, 288, 856).

Regarding Claim 1, A measurement system for determining the fly height of a head in a disc system, said system comprising:

A disc having one or more radial grooves patterned in the disc surface (Pat. No. 6, 088, 200; See Fig. 8, Morita teaches a disk with a plurality of grooves throughout the radius of the disk.);

Art Unit: 2651

A head for reading a signal generated when the disc is rotating (Pat. No. 6, 088, 200; See Fig. 2, Element 6);

Processing an electrical measurement signal to produce a vertical spacing signal proportional to the vertical spacing between the one or more grooves and the head, wherein the electrical measurement signal is generated when the head passes over each of the one or more grooves (Pat. No. 6, 088, 200; Col. 2, Lines 34-41, Lines 48-55, Lines 60-67 and Col. 3, Lines 7-20 and Lines 36-45 and Col. 7, Lines 1-14. Morita teaches a head that receives a signal from the grooves from the disk in order to calculate a LGR (land groove ratio), which calculates the difference in flyheight from the disk from the groove.).

Morita fails to teach wherein the electrical measurement to calculate a flyheight distance contains a signal processing circuit. However, this feature is well known in the art as disclosed by Ottesen et al. wherein it teaches a flyheight method and apparatus wherein it measures the distance of the head with respect to a disk utilizing a signal processing circuit (Pat. No. 6, 288, 856; Col. 2, Lines 5-14). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to modify Morita's invention to contain a signal processing circuit to measure a flyheight distance in order to detect a spacing change from the transducer as it moves throughout the disk (Pat. No. 6, 288, 856; Col. 3, Lines 14-28).

Method claim 9 is drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claim 9 corresponds to apparatus claim 1 and is rejected for the same reasons of obviousness as used above.

Art Unit: 2651

Regarding Claim 2, Morita and Ottesen et al. teach all the limitations of Claim 1. Morita and Ottesen et al. further teach the system wherein.

Regarding Claim 3, Morita and Ottesen et al. teach all the limitations of Claim 1. Morita further teach wherein the disc is made from a material selected from the group comprising aluminum or glass (Pat. No. 6, 088, 200; Col. 9, Lines 40-60).

Regarding Claim 4, Morita and Ottesen et al. teach all the limitations of Claim 1. Ottesen further teach wherein the signal processing circuit measures the pulse width of a signal induced in the head when the head passes over the groove (Pat. No. 6, 288, 856; Col. 3, Lines 14-37 and Col. 4, Lines 5-15. Ottesen et al. teaches using a signal processing circuit to detect and compensate for flyheight changes caused by the pulses supplied by the transducer as it moves throughout the medium.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to modify Morita's invention to contain a signal processing circuit to measure a flyheight distance in order to detect a spacing change from the transducer as it moves throughout the disk (Pat. No. 6, 288, 856; Col. 3, Lines 14-28).

Regarding Claim 5, Morita and Ottesen et al. teach all the limitations of Claim 1. Morita further teach wherein the disc includes a plurality of radial grooves (Pat. No. 6, 088, 200; See Fig. 8, Morita teaches a disk with a plurality of grooves throughout the radius of the disk.).

Regarding Claim 6, Morita and Ottesen et al. teach all the limitations of Claim 1. Ottesen et al. further teach wherein the signal processing circuit comprises circuitry for computing the read back pulse width at 50% amplitude to produce a first time

Art Unit: 2651

derivative signal proportional to the vertical spacing between the first and the second objects groove (Pat. No. 6, 288, 856; Col. 3, Lines 14-37 and Col. 4, Lines 5-15. Ottesen et al. teaches using a signal processing circuit to detect and compensate for flyheight changes caused by the pulses supplied by the transducer as it moves throughout the medium.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to modify Morita's invention to contain a signal processing circuit to measure a flyheight distance in order to detect a spacing change from the transducer as it moves throughout the disk (Pat. No. 6, 288, 856; Col. 3, Lines 14-28).

Regarding Claim 7, Morita and Ottesen et al. teach all the limitations of Claim 1. Morita et al. further teach the calculation of a ratio (a LGR [land groove ratio]) and compares it to a reference (Pat. No. 6, 088, 200; Col. 3, Lines 13-20 and Col. 7, Lines 1-3). Morita fails to teach that the pulse is at half width at fifty percent (Col. 3, Lines 14-28). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to modify Morita's invention to contain a signal processing circuit to measure a flyheight distance in order to detect a spacing change from the transducer as it moves throughout the disk (Pat. No. 6, 288, 856; Col. 3, Lines 14-28).

Regarding Claim 10, Morita and Ottesen et al. teach all the limitations of Claim 9. Ottesen et al. further teach wherein said step of comparing further includes producing a first time derivative signal proportional to the vertical spacing between the head and the surface of the disc (Pat. No. 6, 288, 856; Col. 8, Lines 45 to Col. 9, Line 41. Ottesen et

Art Unit: 2651

al. teach that the signal is measured using a time differentiator and computes the head-to-disk clearance with respect to the medium.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to modify Morita's invention to contain a signal processing circuit to measure a flyheight distance in order to detect a spacing change from the transducer as it moves throughout the disk (Pat. No. 6, 288, 856; Col. 3, Lines 14-28).

Regarding Claim 11, Morita and Ottesen et al. teach all the limitations of Claim 9. Morita further teaches further including measuring a third pulse width of a third signal when the head is flying over a second groove (Pat. No. 6, 088, 200; Col. 3, Lines 37-45 and Col. 11, Lines 57-65).

Regarding Claim 12, Morita and Ottesen et al. teach all the limitations of Claim 9. Morita further teaches wherein further including the step of detecting an electrical defect in the system (Pat. No. 6, 088, 200; Col. 1, Lines 12-20. Morita teaches by adding a control signal to use to detect the grooves in the disc, it prevents cross-talk, which is known in the art to be an electrical problem (caused when two neighboring signals cause interference in the transducer.)).

Regarding Claim 13, Morita and Ottesen et al. teach all the limitations of Claim 9. Ottesen et al. further teach wherein the flyheight being determined is the electrical flyheight (Pat. No. 6, 288, 856; Col. 8, Lines 45 to Col. 9, Line 41. Ottesen et al. teach that the signal is measured is computed as an electrical value measured by the transducer, therefore, it would have been obvious to a person of ordinary skill in the art that the flyheight being calculated is an electrical flyheight.)

***Allowable Subject Matter***

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-19 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding Claim 14, the primary reason for allowance is the inclusion of the limitation wherein measuring means for determining the fly height between the head and the disc surface utilizing a radial groove.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

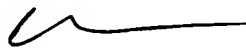
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2651

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
gpt  
April 26, 2004.

  
**DAVID HUDSPETH**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**